DOMATICA

GLOBAL SOLUTIONS

User Manual

KNX server

KNXServerUM_EN_06

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Revision history

Rev #	Date	Authored	Approved	Change description, rationale, location
00	30.08.2012	FP	NCR	First revision
01	30.10.2012	FP	NCR	Update to HW3 devices
02	16.11.2012	JVF	NCR	ETS4.0 Chapter added
03	20.11.2012	JVF	NCR	Chapter 5.3
04	14.11.2014	JVF	JVF	Minor Revision
05	13.04.2015	CR	JVF	Global Revision
06	05.05.2015	CR	JVF	Hints Files added and minor revision

1 INTRODUCTION

1.1 Scope

This document is the User Manual (*manual*) for the ***KNXServer***, developed and manufactured by Domatica Global Solutions, SA.

Use this document to:

- Get yourself familiarized with KNXServer.
- Quickly start using KNXServer
- Install and operate your KNXServer

NOTE: Read and understand this document and all related documents before installing, operating, or maintaining your device.

1.2 Qualified Personnel

Installation procedures must be carried out and inspected by qualified personnel. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with this product

2 SAFETY INFORMATION

Read these instructions carefully, and look at the equipments to become familiar with the device before trying to install, operate, or maintain it.

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol. These notices shown below are graded according to the degree of danger.

Alert messages are shown as below. The depicted triangle, meaningless by itself, is always filled with a symbol

DANGER, WARNING, CAUTION OR NOTICE	
	• **DANGER** indicates a hazard or unsafe practice that will result in severe injury or death; • **WARNING** indicates a hazard or unsafe practice that could result in severe injury or death; • **CAUTION** indicates a hazard or unsafe practice that could result in injury; • **NOTICE** indicates an activity or practice that could result in damage to the device.

The symbol varies with the type of risk described

2.1 Intended use

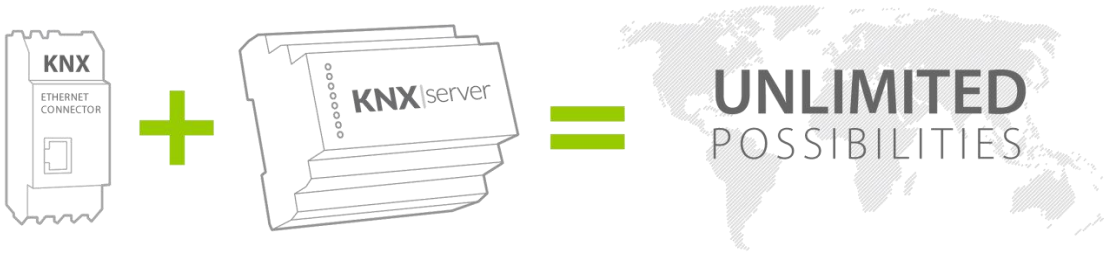
Electronic devices are normally not failsafe. In the event of a failure on the KNXServer devices, the user is responsible for ensuring that other devices that may be connected are made secure.

3 KNXSERVER

3.1 What is KNXServer

The KNXServer is a cloud-based Building Management System that provides a suite of endless functional features and can be applied to any KNX installation type.

The KNXServer is a DIN rail module to ease the integration in your KNX installation. The device connects to the KNX-bus through a standard KNXnet/IP Tunnelling (not included), and uses the free software KNXServer Tool to instantly setup the KNX installation. The KNXServer will allow you to expand your KNX system to other dimension that you never thought before.



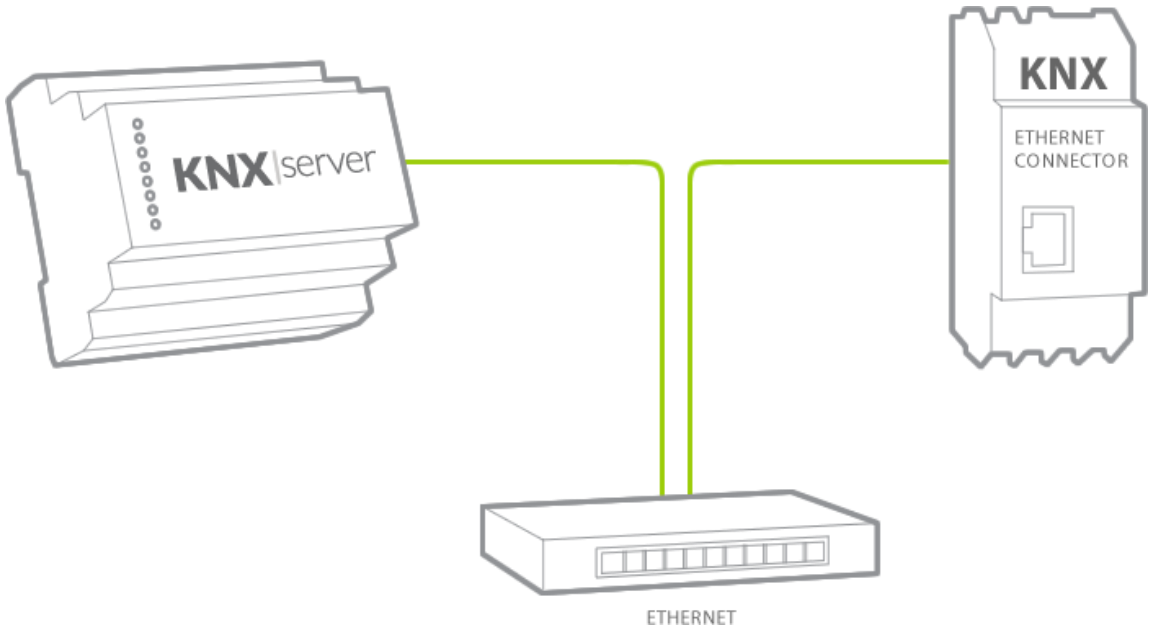
- The KNXServer allows any KNX installation to go to the Web and be managed and controlled from anywhere, in one single platform.
- The KNXServer communicates with KNX sub-systems and brings them to the cloud in a seamless way.
- The KNXServer brings huge opportunities and challenges to the KNX integrators and users.
- The KNXServer enables real-time monitoring and control, automated rules, devices scheduler, alerts and notifications.
- The KNXServer is available in any interface using an internet connection.

KNXServer provides six digital input and six digital outputs for various applications.

3.2 How it works

3.2.1 Install

An easy installation at the Internet router allows you to communicate with your KNX system.



The KNXServer is a DIN Rail based for easily installation. It connects to KNX-Bus through any interface that supports KNXnet/IP Tunnelling.

Certified IP Interface

KNX IP Interface 730 and 770 (730 dedicated connection, 770 multiple connections) from Weinzierld - www.weinzierl.de

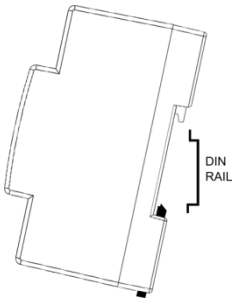
4 INSTALLATION

- Installation must take place according to the documentation, using suitable equipment and tools.
- Devices must be installed without voltage applied and by qualified personnel.
- General safety regulations and nationally applicable accident prevention guidelines must be observed.
- Electrical installation must be carried out according to the relevant guidelines

WARNING

The KNXServer use maximum of 30 Volts DC. The KNXServer can be installed in electrical control cabinets or in small distribution cabinets were hazard voltages are present. When installing observe the risks and avoid potential hazards

The KNXServer can be installed in electrical control cabinets or in small distribution boards according the DIN RAIL standard.

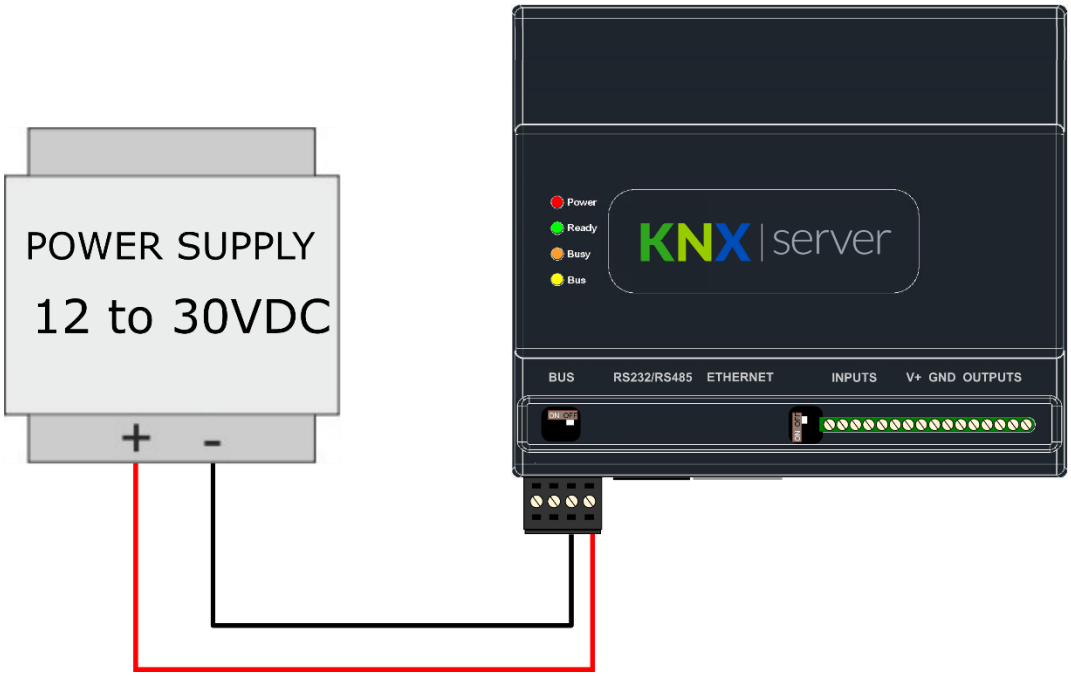


Installation detail on DIN rail

A typical installation of KNX can now integrate with other technologies with different protocols in a very simplified way. KNXServer added to the existing installation allows you to connect to: System Bridge Multi protocol.

4.1 Power Connections

An external power supply is required to provide power to **KNXServer**.

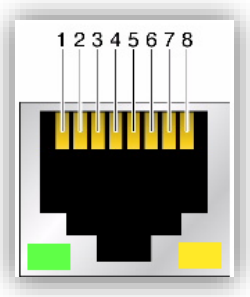


4.2 LEDs Information

Red (Power - Power Supply)
Green (Ready - Ready to Work)
Orange (Busy - Module Activity)
Yellow (Bus - Bus Activity)

4.3 Ethernet

The Ethernet connection provides a full-duplex 10/100Tx connection to the KNX System. With such connection it is possible to program and control the whole KNX Network.

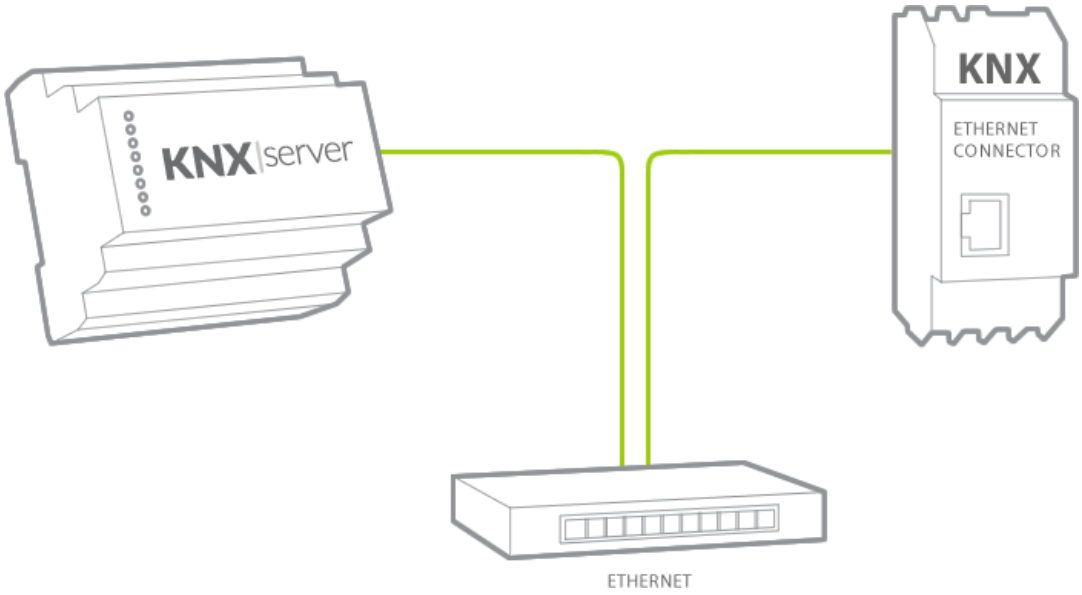


Pin	Description
1	Tranceive Data +
2	Tranceive Data -
3	Receive Data +
4	Bi-directional Data +
5	Bi-directional Data -
6	Receive Data -
7	Bi-directional Data +
8	Bi-directional Data -

Over Ethernet it is possible to connect to the KNX Ethernet Device protocol, for more details please refer to the specific manual.

4.4 KNX IP Interface

The KNX IP Interface allows communication between the KNXServer and the KNX network. The connection should be as shown below.



5 CREATE KNXSERVER NETWORK BASED ON EXISTING KNX INFRASTRUCTURES

Before start creating a KNXServer Network based on existing KNX Sytems infrastructures, you will need the following:

1. The KNXServer Hardware;
2. Network Router With DHCP;
3. KNX/IP Interface (certified);
4. KNX Project for ETS Software Tool;
    a. ETS5 – Project.knxproj;
    b. ETS4 – Project.knxproj;
    c. ETS3 – project.esf.

5.1 VERIFICATIONS

5.1.1 KNX/IP Interface:

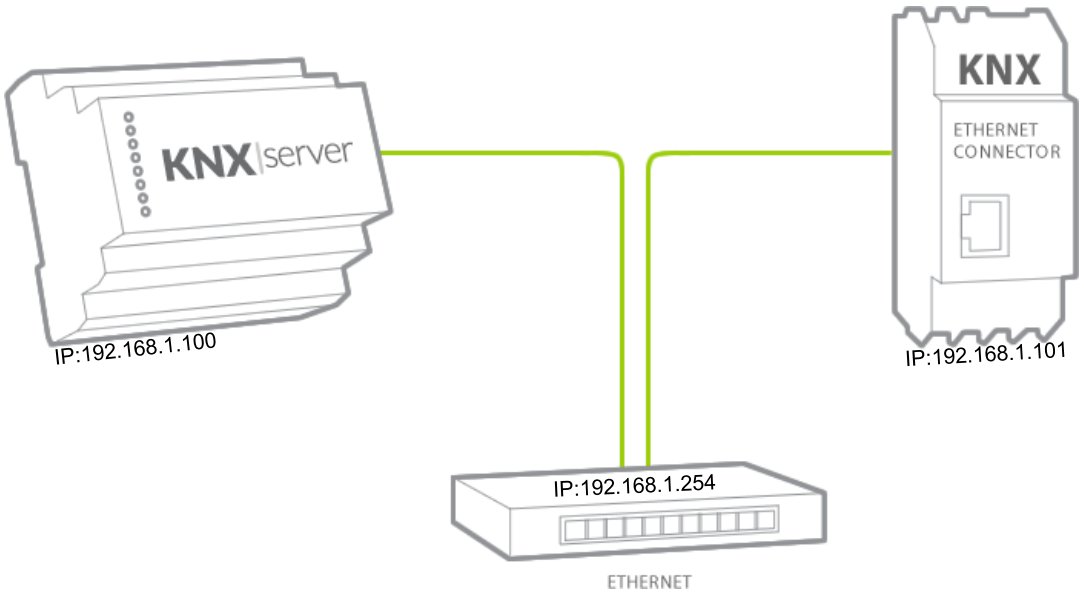
1. Check if the KNX Device IP is in the same IP range as the router (Example: Image).

5.1.2 KNXServer

1. By default, the KNXServer has DHCP active, so it will get an IP automaticaly from the router. Nevertheless, check if the KNXServer IP is in the same IP range as the router (Example: Image).

5.1.3 Connections:

How to connect the KNXServer and the KNX device (Example: Image).

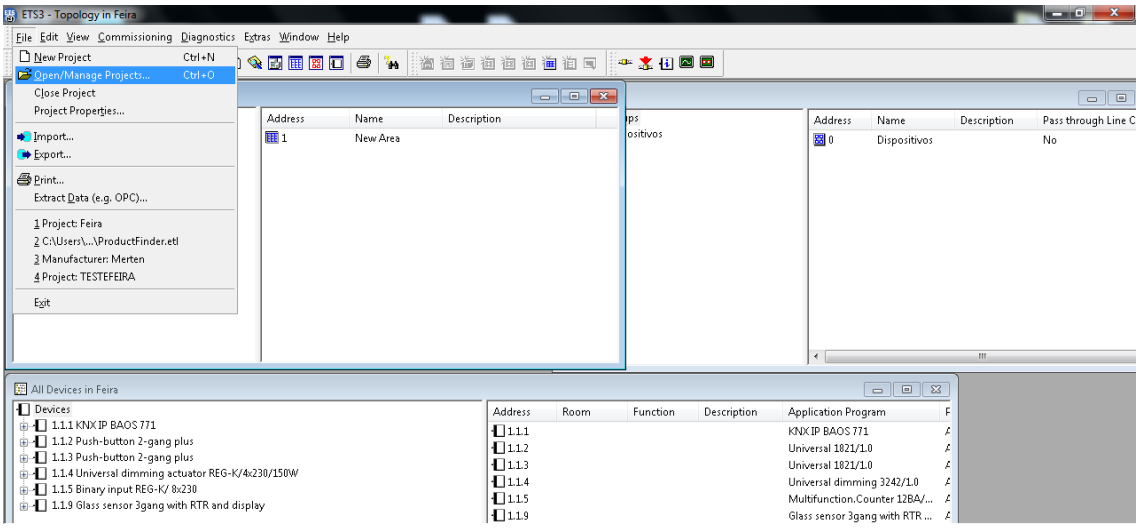


5.2 Export ETS Project or OPC File (ESF extension)

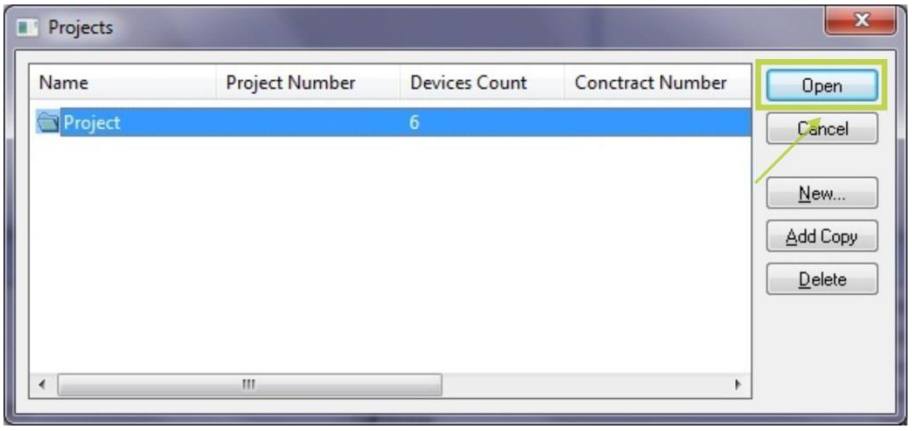
5.2.1 ETS 3.0 (Engineering Tool Software)

Open ***ETS 3.0***.

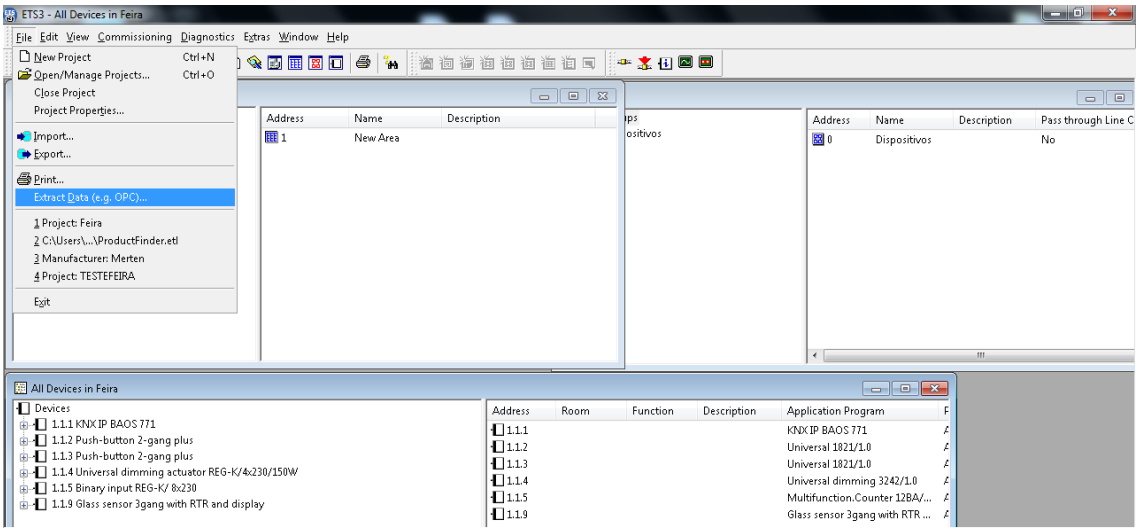
In main menu select ***File*** and click ***Open/Manage Project***.



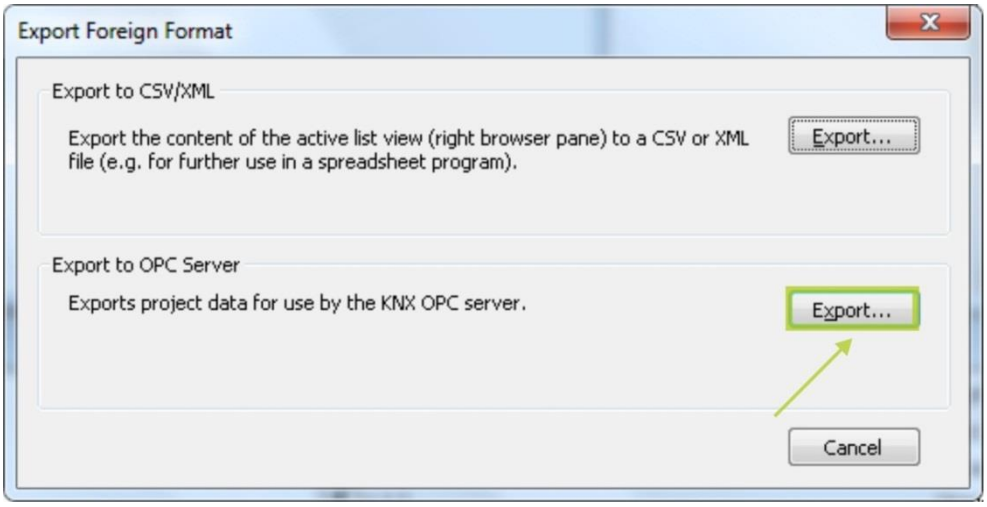
Select the most recent project and click ***Open***.



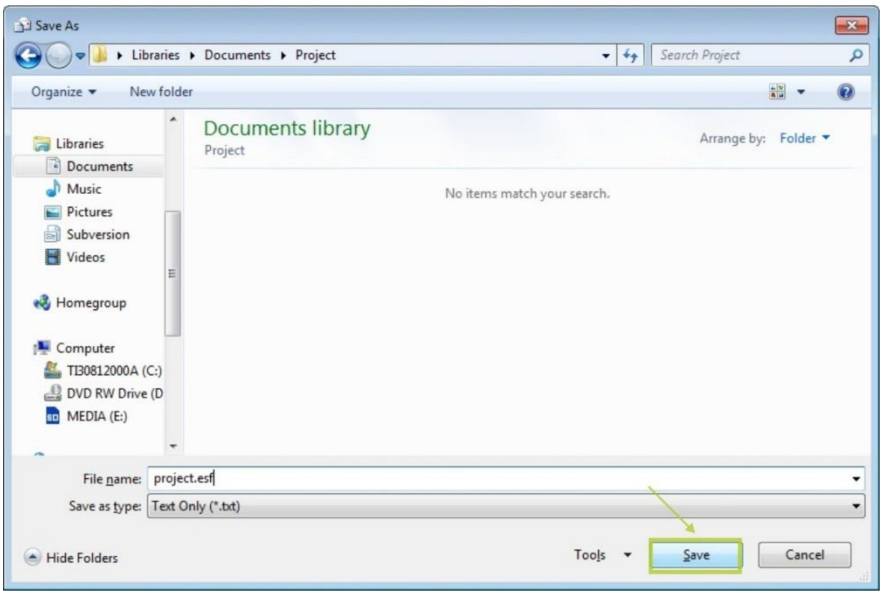
In main menu select ***File*** and click ***Extract Data (e.g. OPC***).



In menu ***Export to OPC Server*** click ***Export***.


Export Foreign Format
Export to CSV/XML
Export the content of the active list view (right browser pane) to a CSV or XML file (e.g. for further use in a spreadsheet program).
Export...
Export to OPC Server
Exports project data for use by the KNX OPC server.
Export...
Cancel

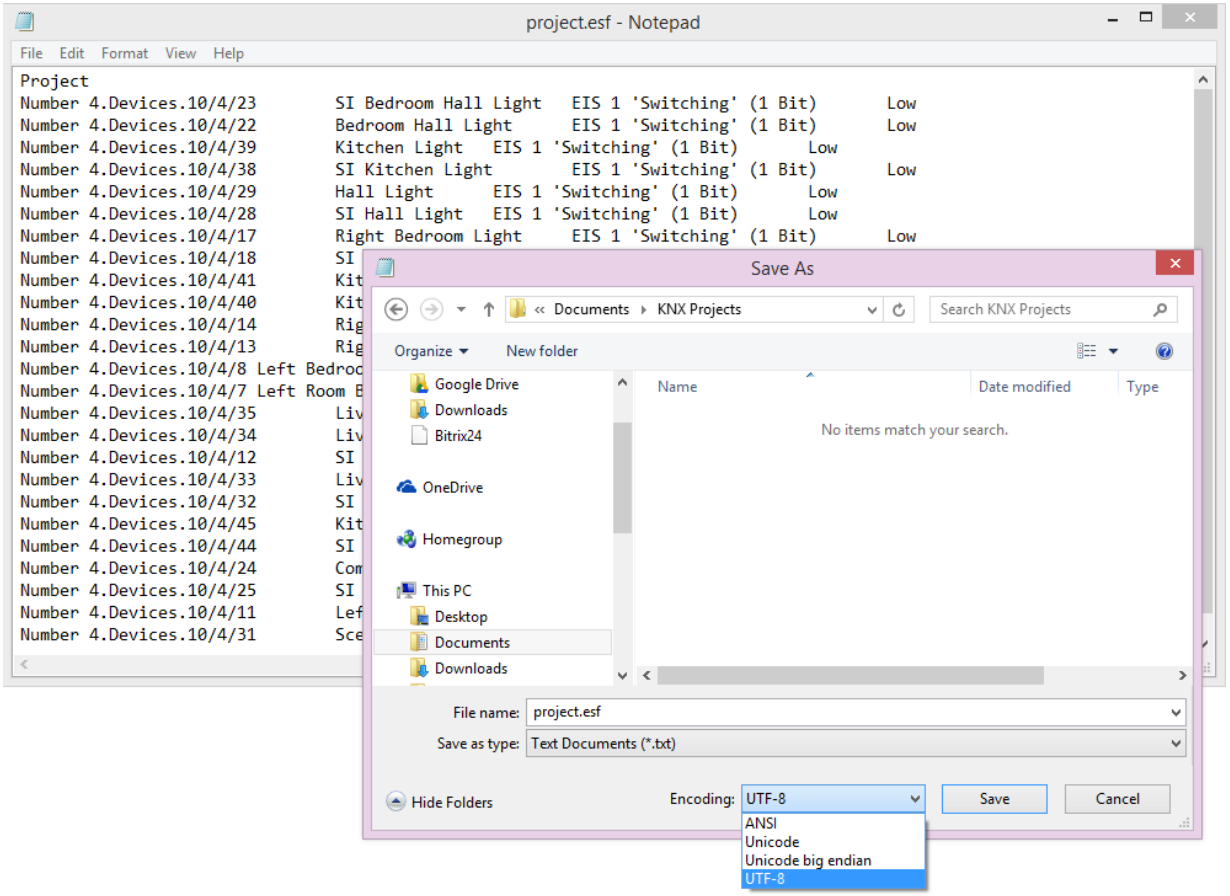
Insert the intended name and save the project.



5.2.1.1 Save .ESF file in UTF-8 encoding

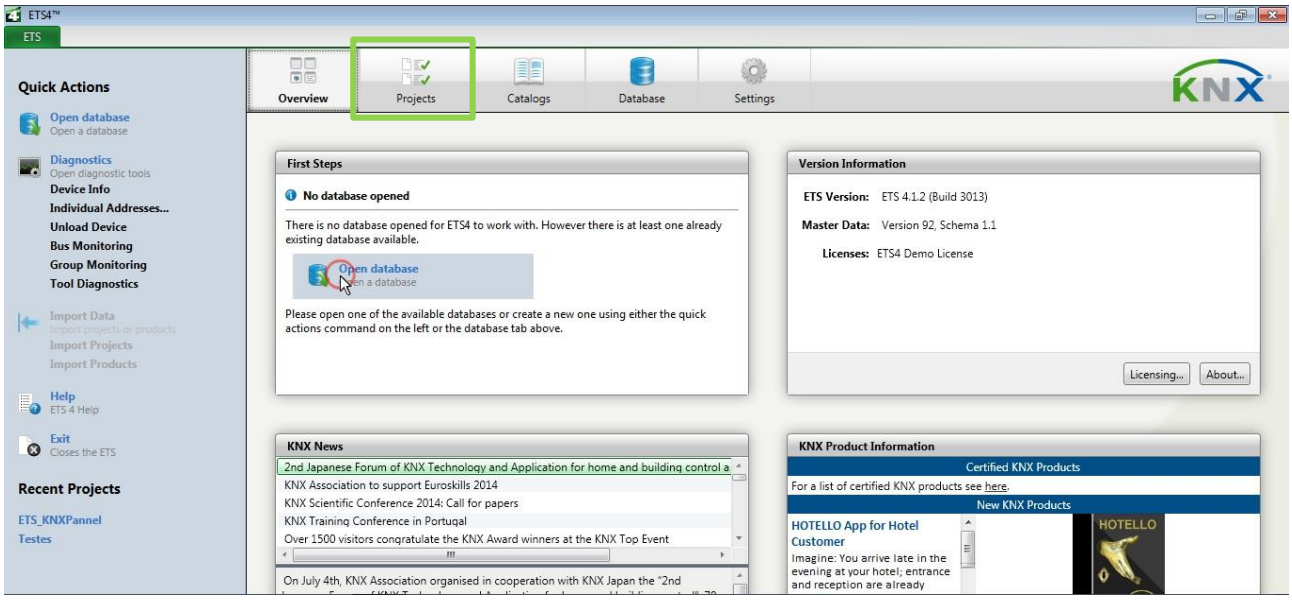
To prevent importation of special characters to KNXServer Tool, that will difficult the process of creating KNXServer data file, the **.esf** file must be saved in UTF-8 encoding.

To do so, open the **.esf** file with *Notepad,* and save your file with UTF-8 Encoding, as shown bellow.

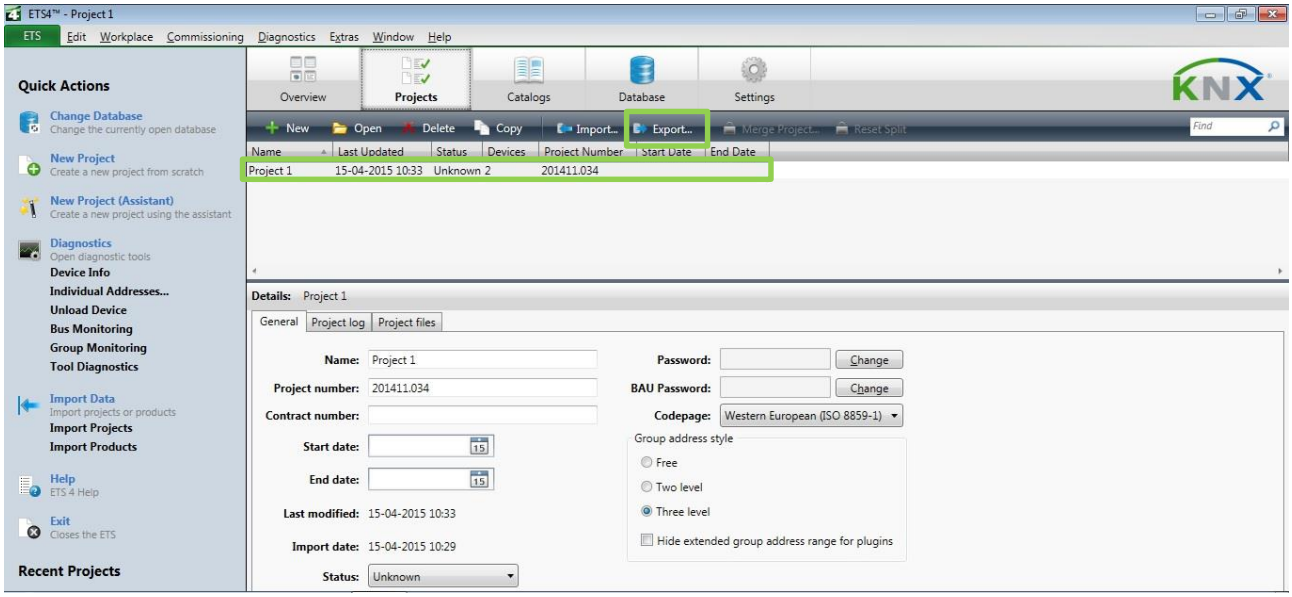


5.2.2 ETS 4.0 (Engineering Tool Software)

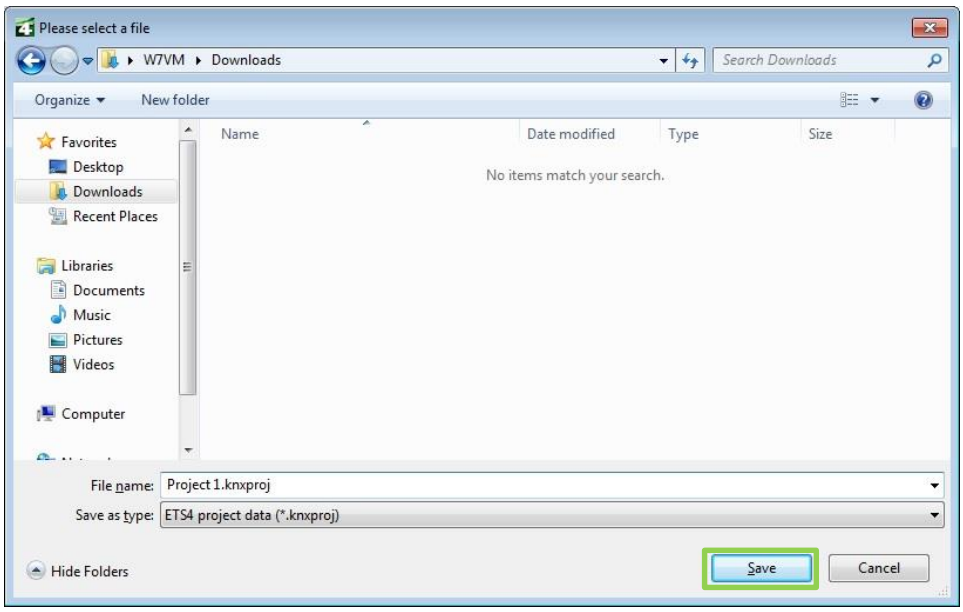
Open ETS4 and go to ***Projects*** by clicking the respective icon.


ETS4™
ETS
Quick Actions
Open database
Open a database
Diagnostics
Open diagnostic tools
Device Info
Individual Addresses...
Unload Device
Bus Monitoring
Group Monitoring
Tool Diagnostics
Import Data
Import projects or products
Import Projects
Import Products
Help
ETS 4 Help
Exit
Closes the ETS
Recent Projects
ETS_KNXPannel
Testes
Overview
Projects
Catalogs
Database
Settings
KNX
First Steps
No database opened
There is no database opened for ETS4 to work with. However there is at least one already existing database available.
Open database
Please open one of the available databases or create a new one using either the quick actions command on the left or the database tab above.
Version Information
ETS Version: ETS 4.1.2 (Build 3013)
Master Data: Version 92, Schema 1.1
Licenses: ETS4 Demo License
Licensing...
About...
KNX News
2nd Japanese Forum of KNX Technology and Application for home and building control a
KNX Association to support Euroskills 2014
KNX Scientific Conference 2014: Call for papers
KNX Training Conference in Portugal
Over 1500 visitors congratulate the KNX Award winners at the KNX Top Event
On July 4th, KNX Association organised in cooperation with KNX Japan the "2nd
KNX Product Information
Certified KNX Products
For a list of certified KNX products see here.
New KNX Products
HOTELLO App for Hotel Customer
Imagine: You arrive late in the evening at your hotel; entrance and reception are already
HOTELLO

Select the project you want to use and click on the ***Export*** button.

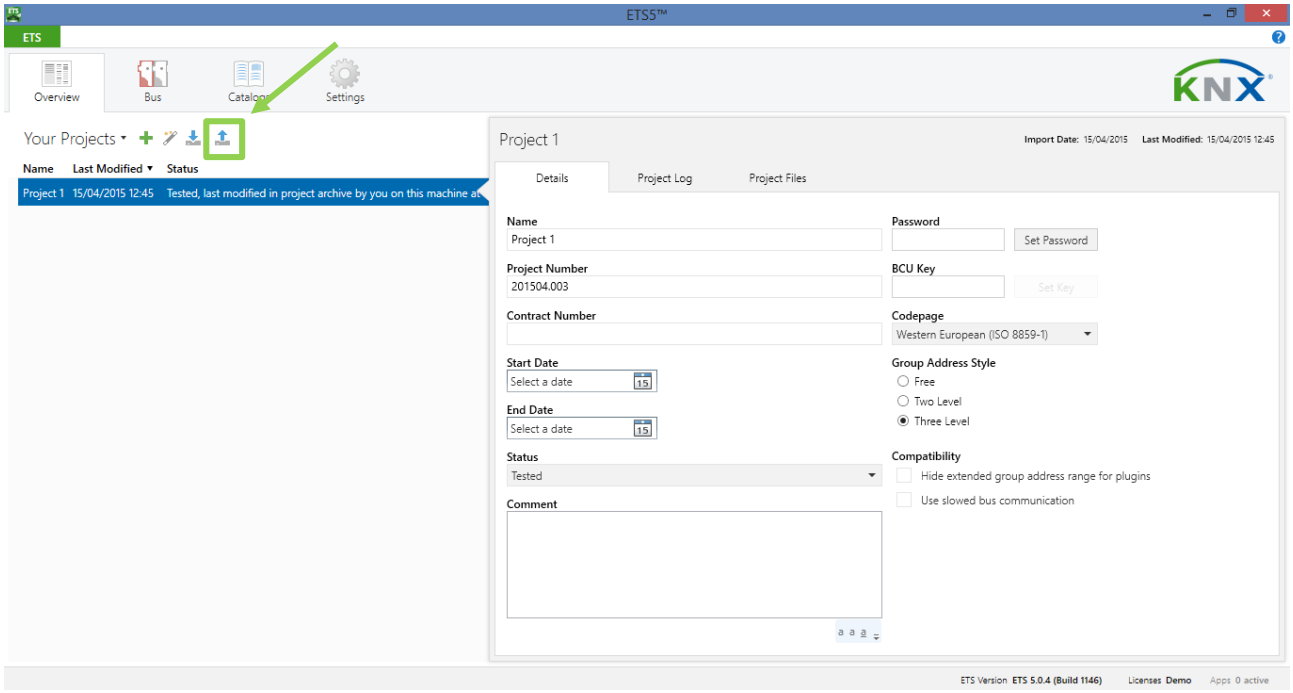


Choose directory to save your Project and click ***Save*** button.

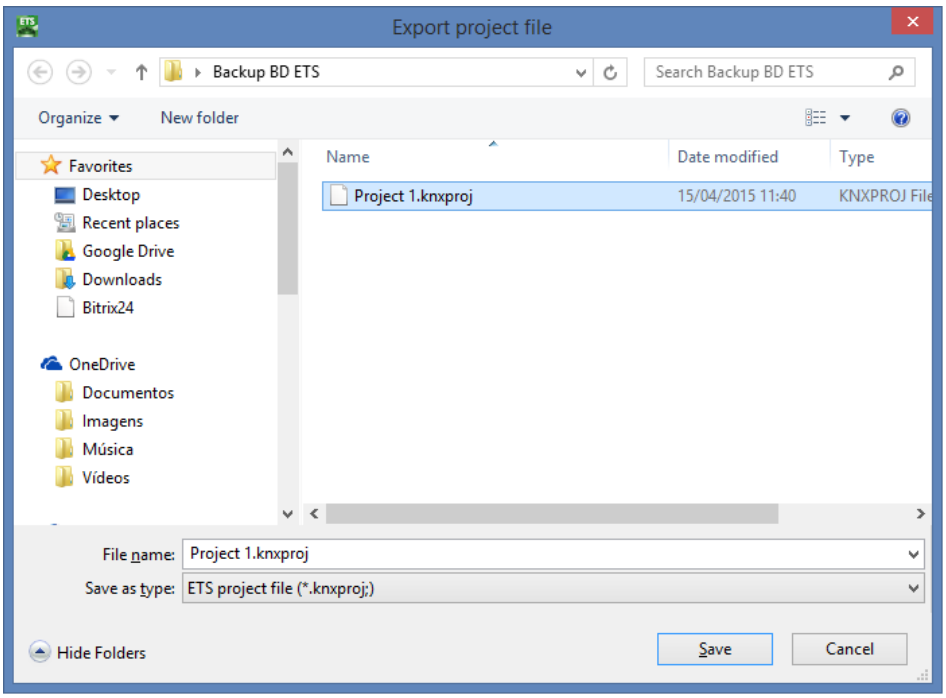


5.2.3 ETS 5 (Engineering Tool)

Open ETS5, select the project you want to use and click on ***Export*** button.



Choose directory to save you project and click ***Save*** button.



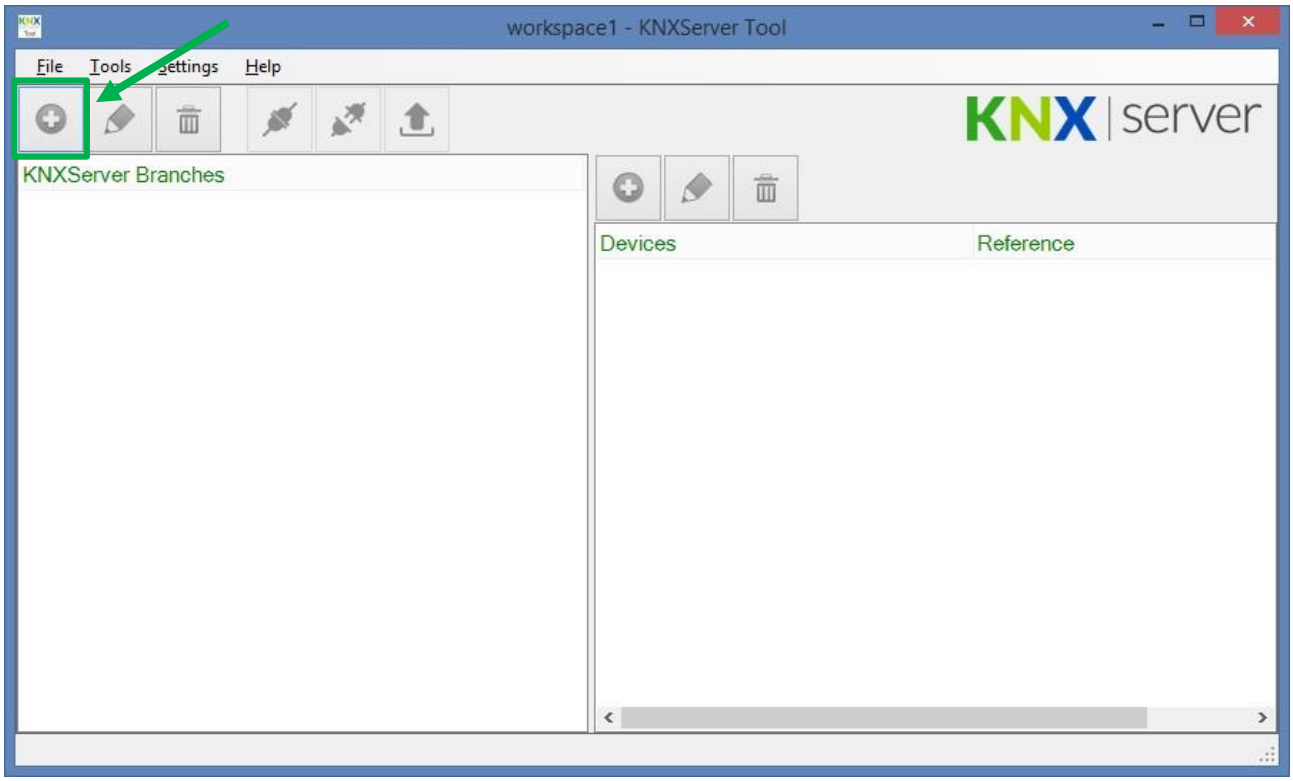
6 KNXSERVER TOOL

6.1 Download and execute the KNXServer Tool

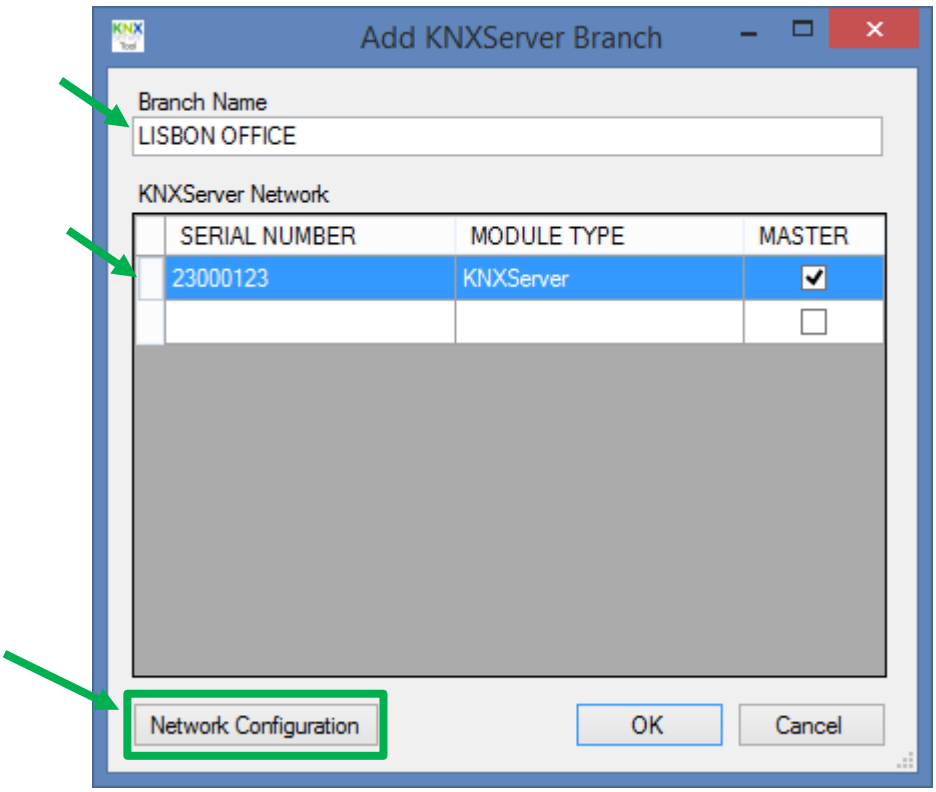
Download the KNXServer Tool from the support website.

6.2 Create a Workspace

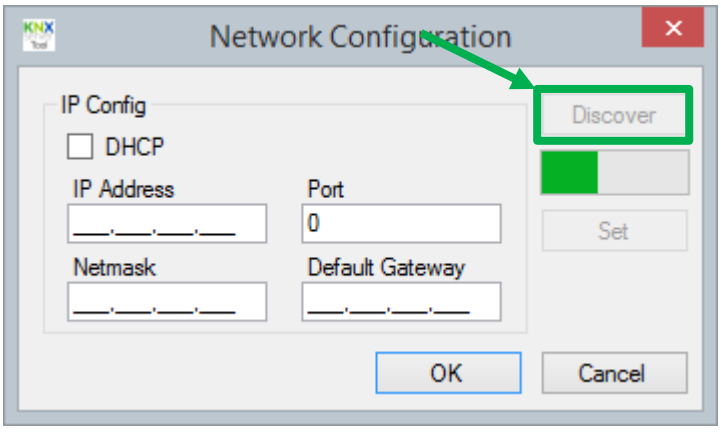
Open your KNXServer Tool and create a new KNXServer Branch, using the Add button, as shown in picture



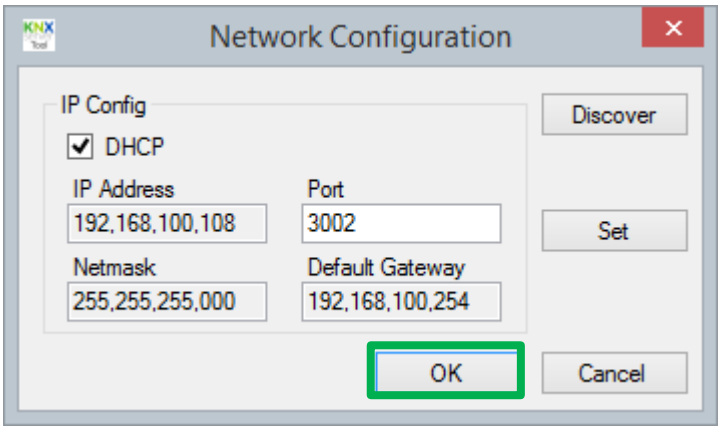
Fill Branch Name field, insert KNXServer Serial Number and click Network Configuration.



Then click on Discover to find your KNXServer



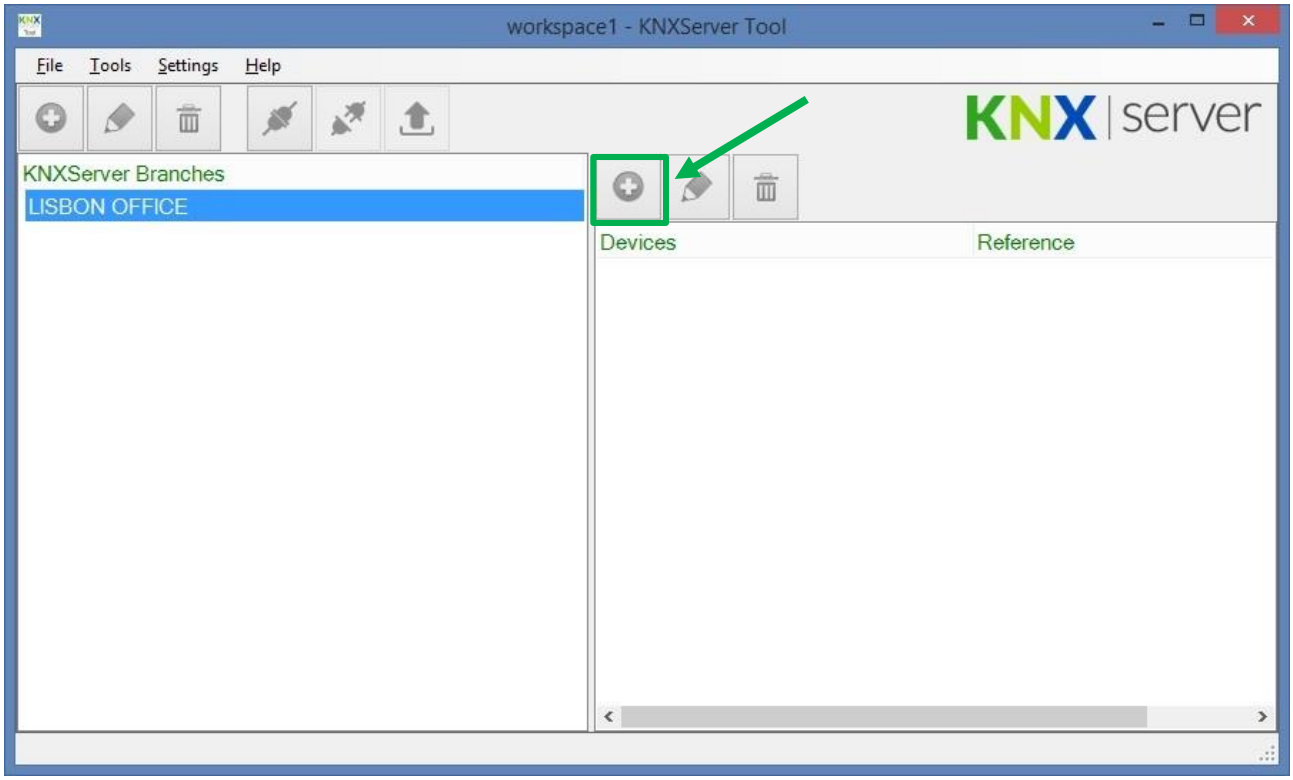
When it finds the KNXServer, all the fields in IP Config wil de completed.



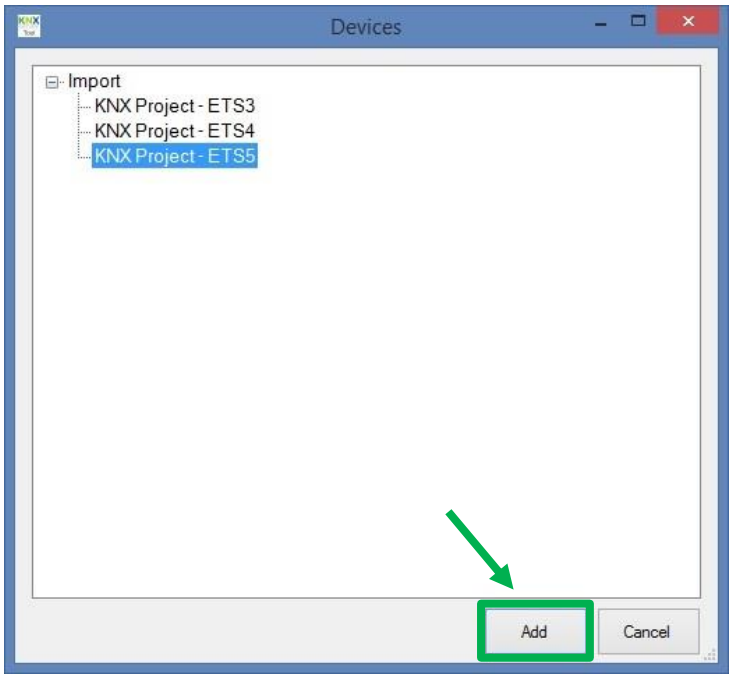
Click Ok to save Network Configurations and again to create KNXServer Branch.

6.3 Add Devices

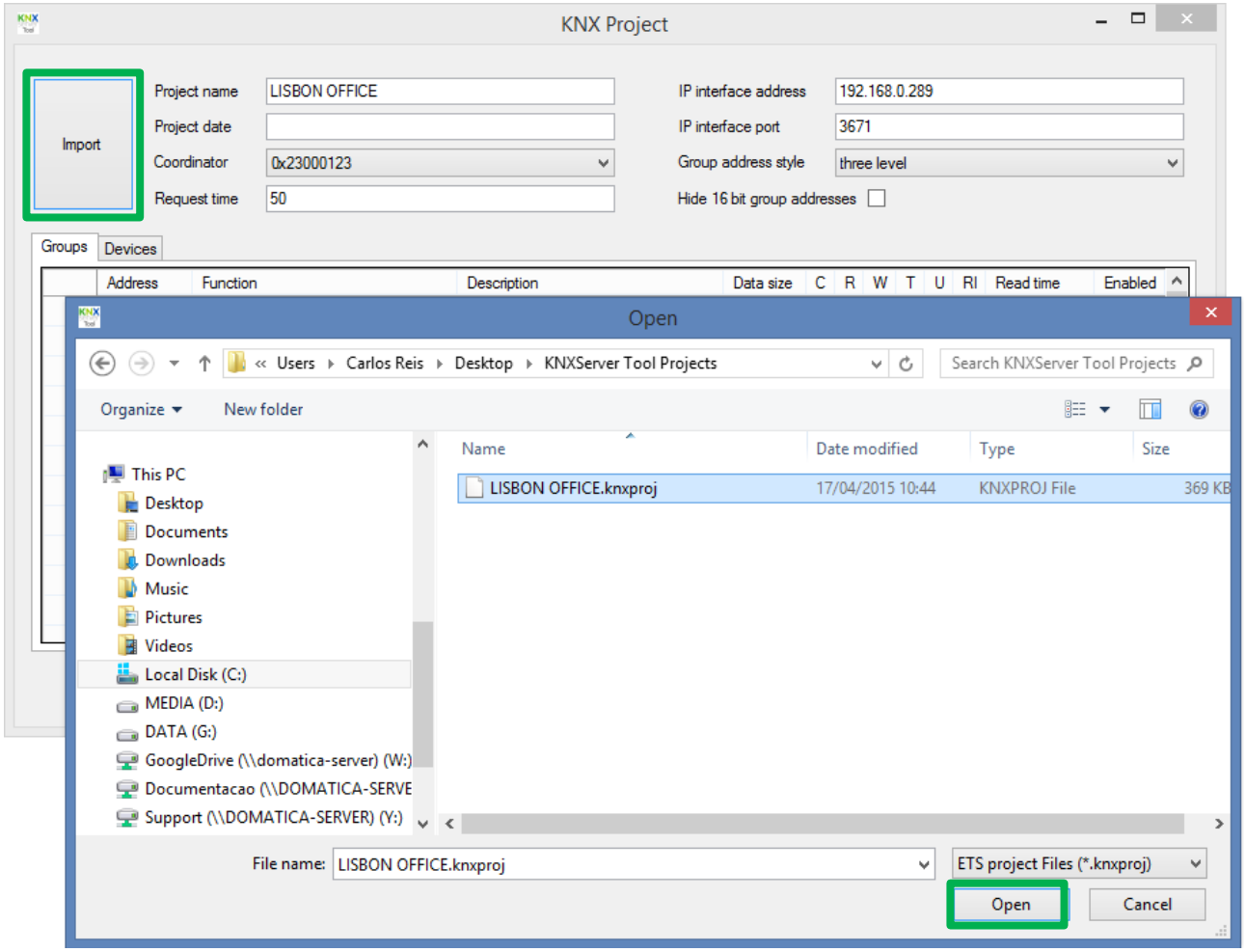
For "*LISBON OFFICE*" add a new device by clicking the "Add" button on the right side of the Tool.



Then, on “Import”, select what version of ETS Project you want to import and click “Add” button.

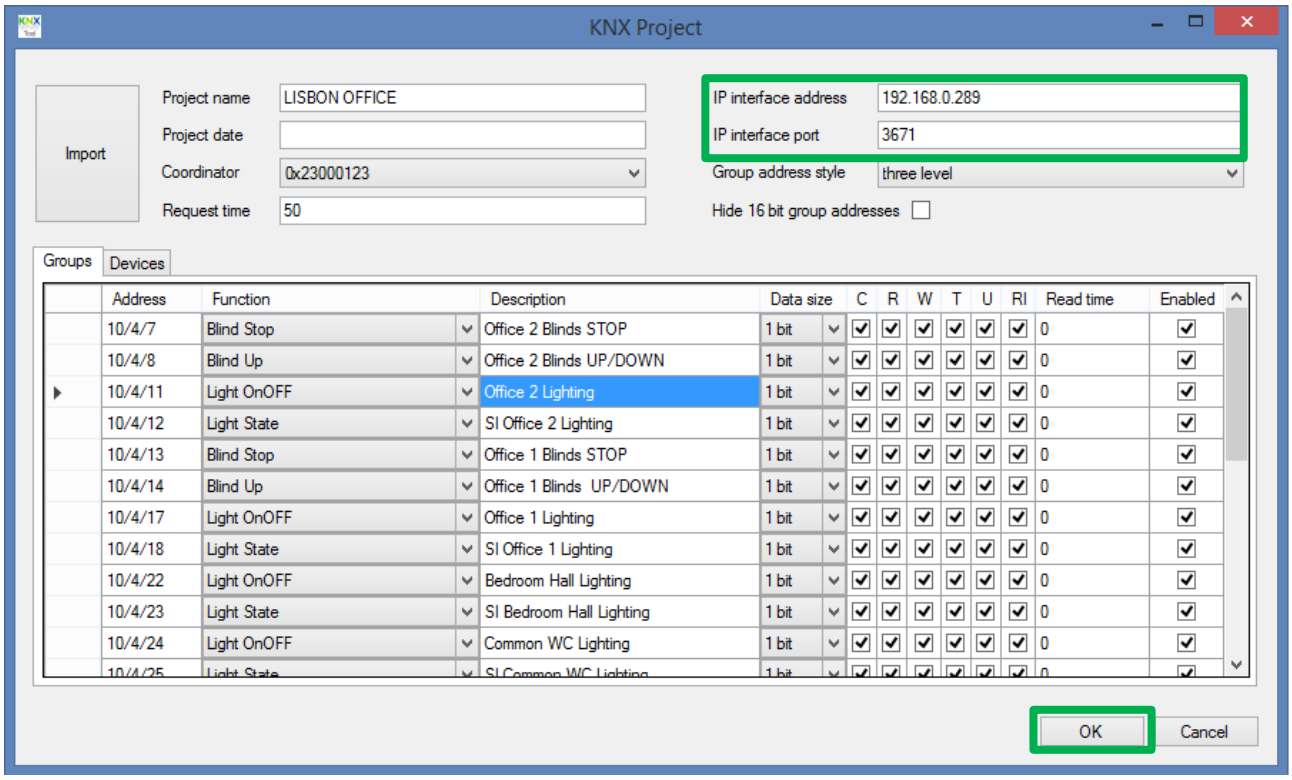


In the next window, click on “Import”, navigate to the wanted ETS project file and click open.



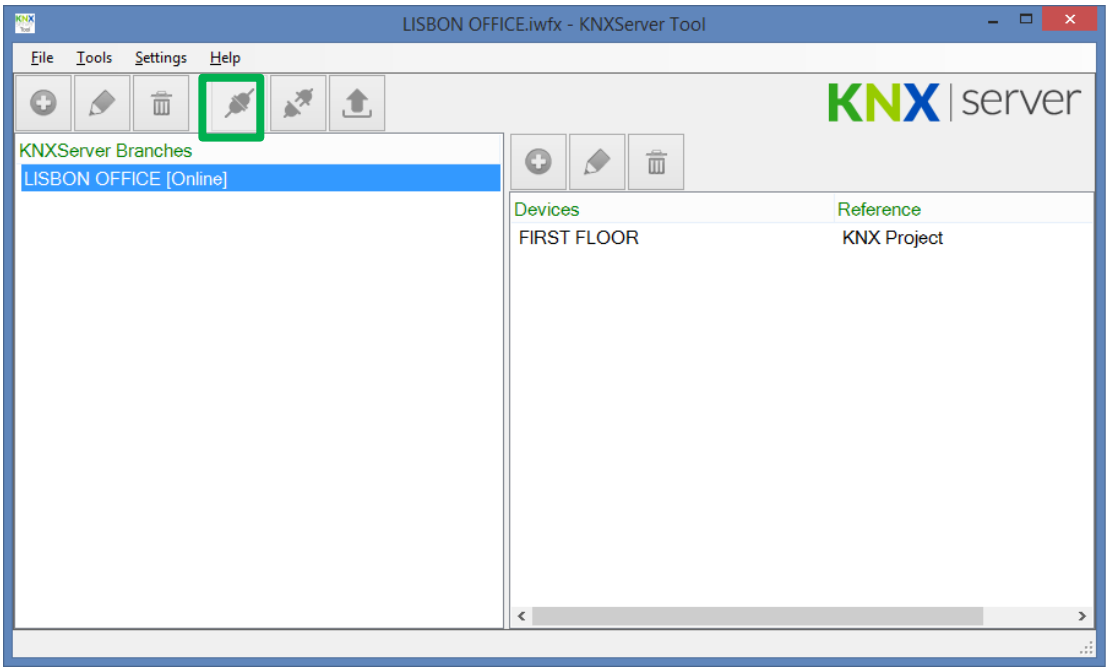
Validate Group Address Function, Description, Data Size, Flags and Enable or Disable group addresses, and click “Ok”.

Make sure to insert the IP interface address and port!

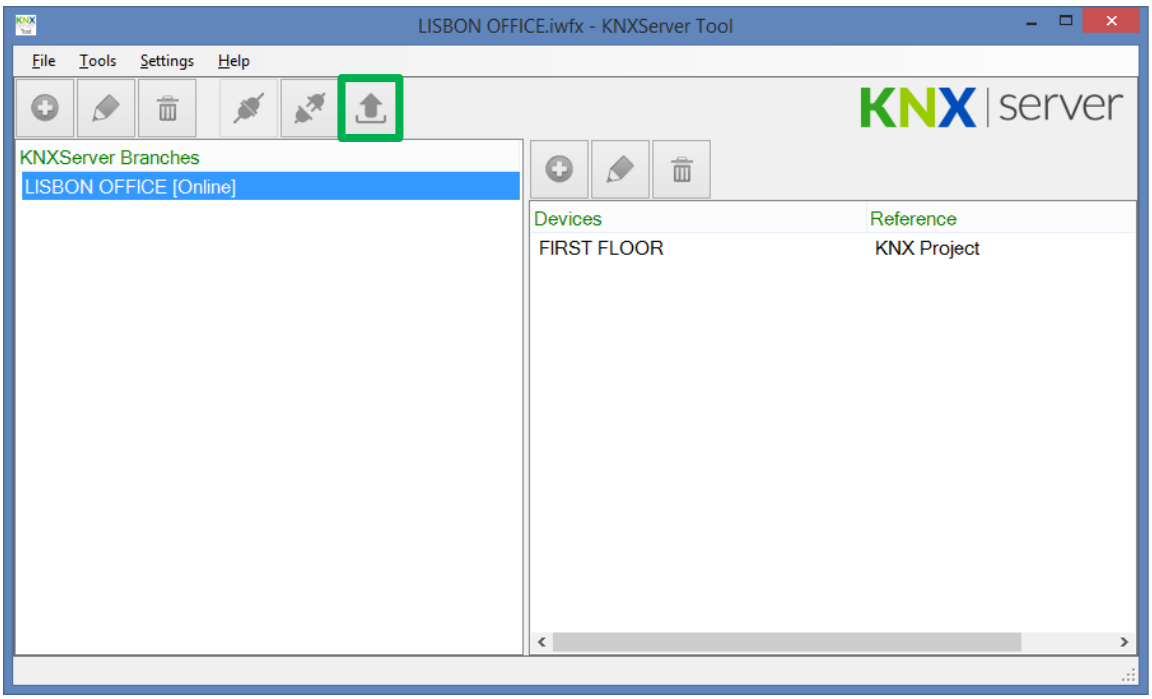


6.4 Send the data to the KNXServer

The final step is to send the data to the KNXServer.
To do that you must click the connect button as shown bellow. If connection is successful it will appear “*[Online]*” next to branch name.



Then, click on “Deploy” button to send the data.



6.5 How it works

KNXServer Tool is a software designed to configure KNXServer hardware.
With it, you can transform ETS Group Adresses to KNXServer Software devices that will be available online.

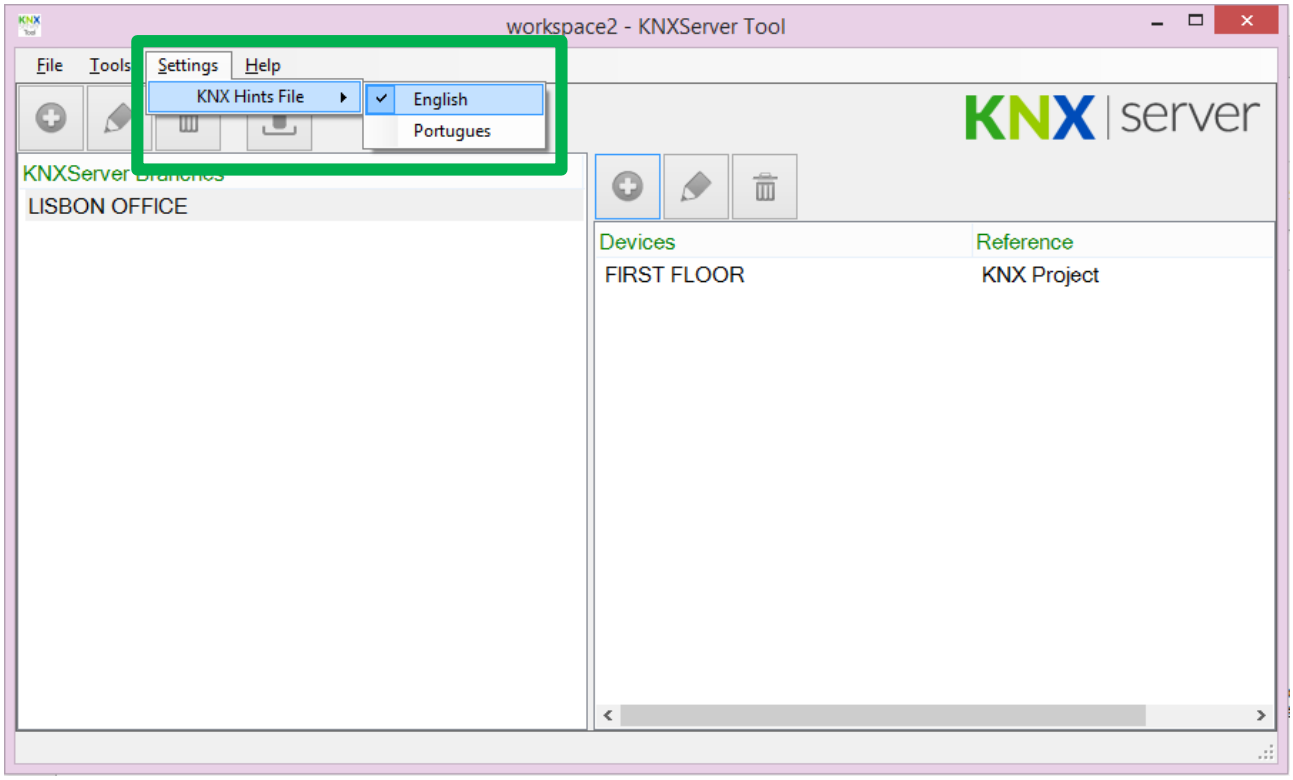
This process is made by predicting what the group address will be used to.

6.5.1 KNX Hints File

KNXServer Tool uses a **Hints File** to predict Group Address Functions, i.e. the **Hints File** contains usual words and expressions used in ETS configuration, which will help to predict the function given to that group address.

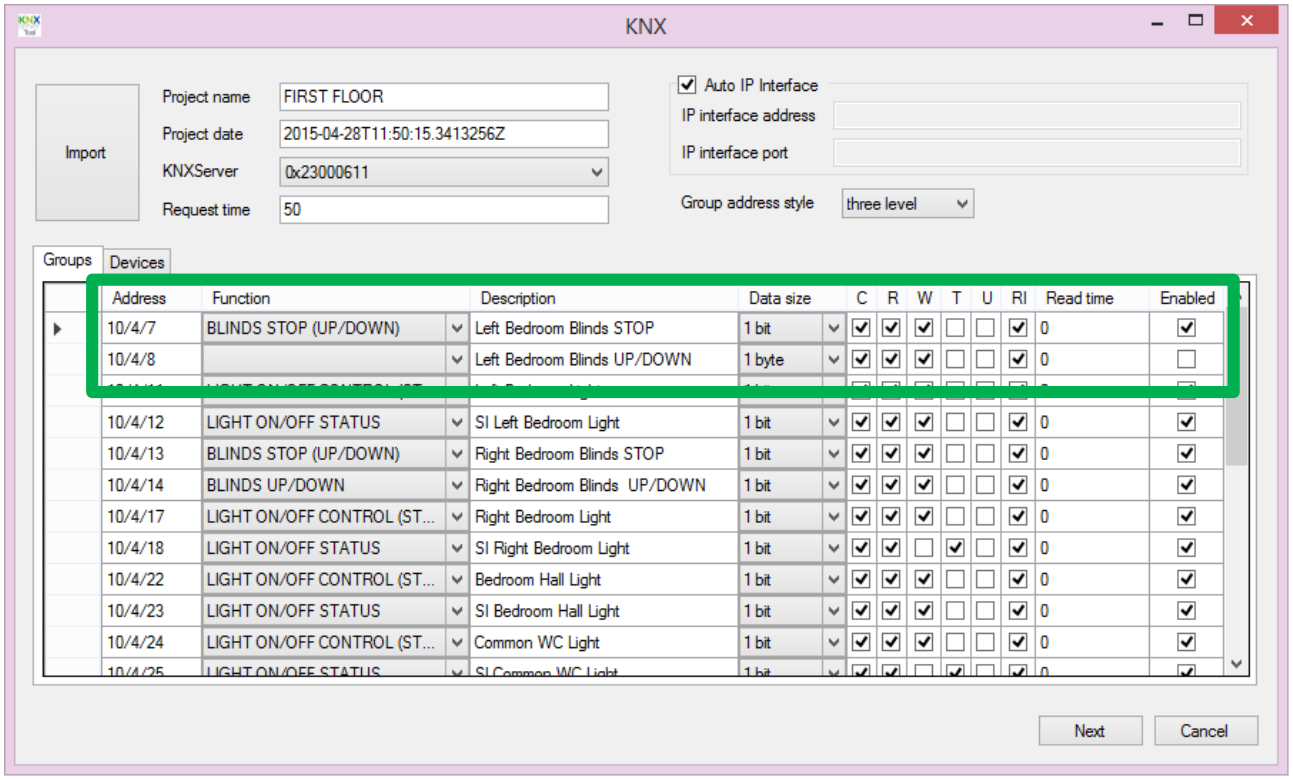
E.g., if you have a Group Address named “***Blinds Main Room Up/Down***”, the KNXServer Tool will recognize the words “Bilnds”, “*Up*” and “*Down*” and it will know that it’s the a Blinds Group Address to control Up/Down movement, and will define it as **BLINDS UP/DOWN** Funtion, if the datasize is correct.

There can be multiple Hints Files for multiple languages, and you can choose it by selecting from “*Settings*” menu.

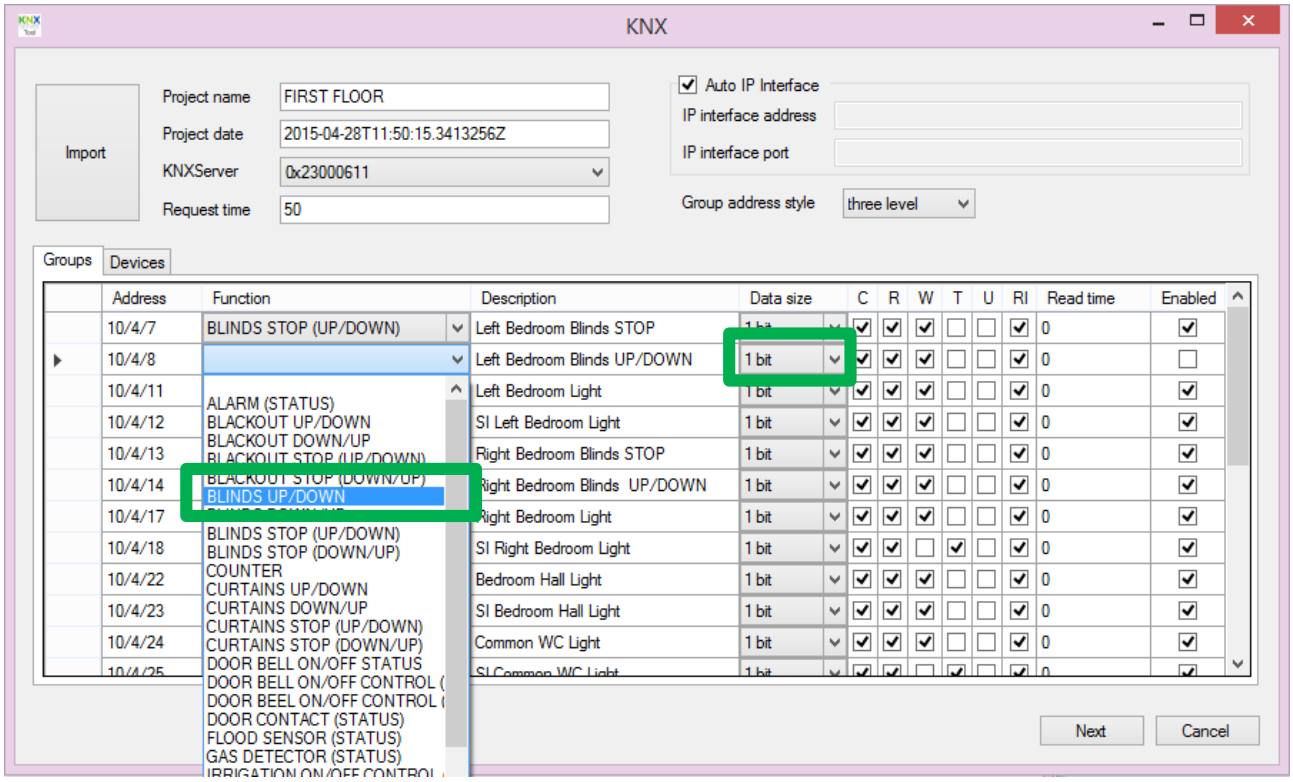


6.5.2 Datasize

When trying to define the Group Address as **BLINDS UP/DOWN** Funtion, if the datasize is correct (1 bit) it will be defined, if the data size is incorrect (e.g. 1 byte) then the function will not be defined and the user must define-it in **Import Window**.



In the picture above, there's an example of a group address (10/4/8) with a Data Size not suitable to an Up/Down blinds control. The Tool was not able to define the Function and the Group address is not enabled. You have to select the correct Data Size (1 bit), and define the Function (BLINDS UP/DOWN). Se picture below.



When you validate all the group addresses, you cand deploy to the KNXServer.

6.6 Datapoints Types

The KNXServer can support all the datapoints types (DPT, but not all are available at this time.

The datapoinsts types available are:

Id	Name	Range	Unit	Resolution
1.001	DPT_Switch	0 = Off / 1 = On	-	-
1.005	DPT_Alarm	0 = No alarm / 1 = Alarm	-	-
1.019	DPT_Window_Door	0 = Closed / 1 = Open	-	-
No ID	No Name	0 = Automatic / 1 = Open	-	-
No ID	No Name	0 = Idle / 1 = Detect	-	-
No ID	No Name	0 = Fail / 1 = Ok	-	-
5.004	DPT_Percent_U8	[0…255]	%	1%
9.001	DPT_Value_Temp	-273 °C … 670 760 °C	°C	0,01 °C
9.004	DPT_Value_Lux	0 Lux … 670 760 Lux	Lux	0,01 Lux
9.005	DPT_Value_Wsp	0 m/s … 670 760 m/s	m/s	0,01 m/s
9.007	DPT_Value_Humidity	0 % … 670 760 %	%	0,01%
9.008	DPT_Value_AirQuality	0 ppm … 670 760 ppm	ppm	0,01 ppm
9.020	DPT_Value_Volt	-670 760 mV… 670 760 mV	mV	0,01 mV
9.021	DPT_Value_Curr	-670 760 mA … 670 760 mA	mA	0,01 mA

9.024	DPT_Power	-670 760 kW … 670 760 kW	kW	0,01 kW
9.024	DPT_Power	-670 760 W … 670 760 W	W	0,01 W
9.027	DPT_Value_Temp_F	-459,6 °F to 670 760,96 °F	°F	0,01 °F
12.001	DPT_Value_4_Ucount	counter pulses		1 pulse
13.010	DPT_ActiveEnergy	[-2 147 483 648 … 2 147 483 647] Wh	Wh	1 Wh
13.013	DPT_ActiveEnergy_kWh	[-2 147 483 648 … 2 147 483 647] kWh	kWh	1 kWh
17.001	DPT_SceneNumber	SceneNumber (0...63)		1

To request new datapoint types, please go to support.domaticasolutions.com and submit a ticket indicating the datapoint types needed.

7 REGISTER YOUR KNXSERVER ONLINE

The last step to start using your KNXServer is to register online so you can access all KNXServer functionalities.

When you order your KNXServer, you will receive an email with the following information:

- Entity code
- Username
- Automatically generated passsword

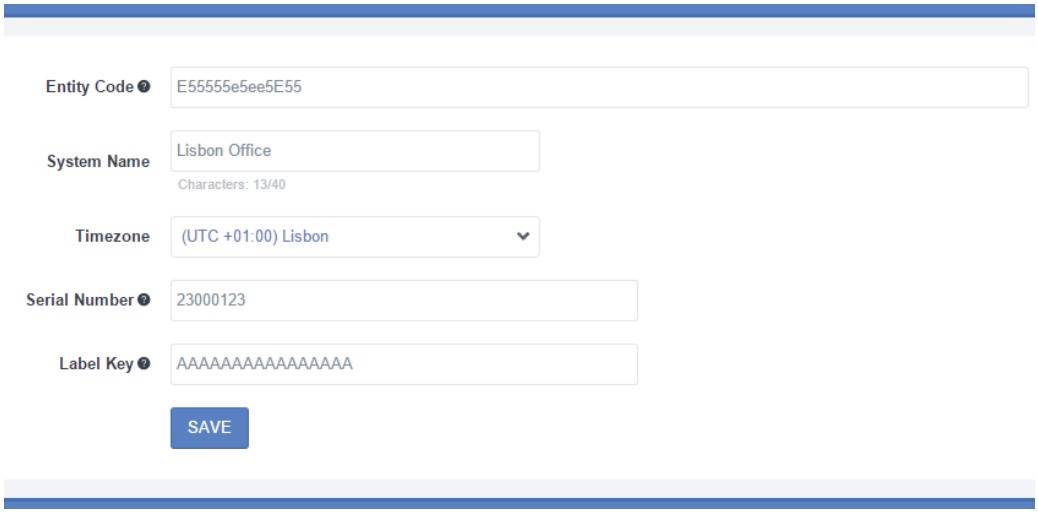
Then, when you receive your KNXServer, on the right top of it you have a small label with the serial number and the label key, as shown in image.

Serial Number and Label Key format is:

S N: 23XXXXXX
L K: XXXXXXXXXXXXXXXX

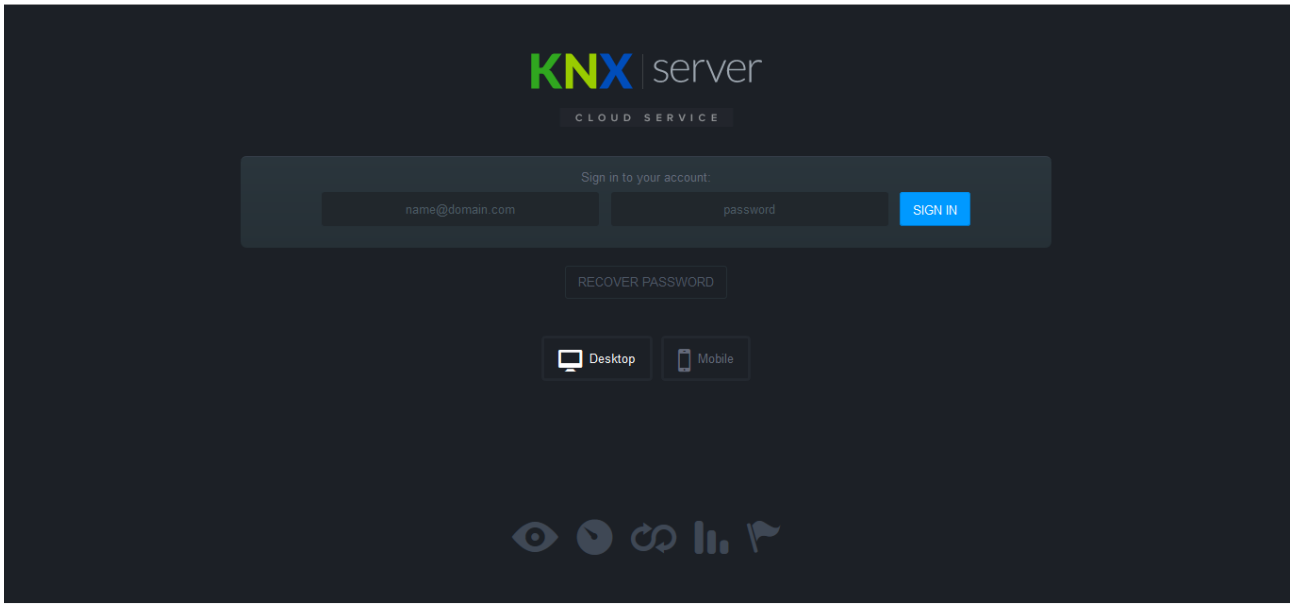
Where X represents a hexadecimal digit.

Go to **http://register.knxserver.com** and register your equipment.



8 ACCESS KNXSERVER CLOUD SERVICE

To visualize your KNXServer data, go to **http://web.knxserver.com/** using the credentials sent by email and Enjoy!!!



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